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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/088,975	08/13/2002	Thomas L Ritzdorf	SEMT118781	6706
26389 7590 01/04/2007 CHRISTENSEN, O'CONNOR, JOHNSON, KINDNESS, PLLC 1420 FIFTH AVENUE SUITE 2800 SEATTLE, WA 98101-2347			EXAMINER LEADER, WILLIAM T	
			ART UNIT	PAPER NUMBER
			1742	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		01/04/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/088,975

Applicant(s)

RITZDORF ET AL.

Examiner

William T. Leader

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-8,11-22,24-26 and 28-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-8,11-22,24-26 and 28-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 10/26/06.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 10, 2006, has been entered.
2. Claims 1, 3-8, 11-15, 22, 24-26, 28-31 and 33-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dubin et al (5,972,192) combined with Ueno (6,245,676) for the reasons given in the previous office action and in view of the following comments.
3. Claims 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dubin et al (5,972,192) combined with Ueno (6,245,676) as applied to claims 1, 3-8, 11-15, 22, 24-26 and 28-37 above, and further in view of in view of Sonnenberg et al (5,223,118) and Creutz (3,770,598) for the reasons given in the previous office action and in view of the following comments.
4. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dubin et al (5,972,192) combined with Ueno (6,245,676) as applied to claims 1, 3-8, 11-15, 22, 24-26 and 28-37 above, and further in view of in view of Ting et al (5,969,422) for the reasons given in the previous office action and in view of the following comments.

5. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dubin et al (5,972,192) combined with Ueno (6,245,676) as applied to claims 1, 3-8, 11-15, 22, 24-26 and 28-37 above, and further in view of Uzoh et al (6,251,251) for the reasons given in the previous office action and in view of the following comments.
6. Claims 1, 3-8, 11-15, 22, 24-26 and 28-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dubin et al (5,972,192) for the reasons given in the previous office action and in view of the following comments.
7. Claims 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dubin et al (5,972,192) and further in view of in view of Sonnenberg et al (5,223,118) and Creutz (3,770,598) for the reasons given in the previous office action and in view of the following comments.
8. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dubin et al (5,972,192) in view of in view of Ting et al (5,969,422) for the reasons given in the previous office action and in view of the following comments.
9. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dubin et al (5,972,192) in view of Uzoh et al (6,251,251) for the reasons given in the previous office action and in view of the following comments.
10. Applicant's Remarks have been carefully considered but are not deemed to be persuasive. Applicant points out that claim 1 has been amended to recite that the second time period is greater than or equal to ten seconds. This limitation is not seen as distinguishing over the

references as applied. With respect to the rejections based on Dubin et al alone, example 1 of Dubin et al indicates that the kinetics of electroplating copper were observed after time periods of 20, 40 and 80 seconds. These time periods are all within the range now recited for the second time period in claim 1. Time of electrolysis is a result-effective variable. The longer the time period, the greater the electrolytic effect achieved. Based on the teaching of Dubin et al, choice of an appropriate duration for the second time period would have been a matter of routine optimization within the skill of the ordinary worker in the art.

11. With respect to the rejections based on Dubin et al combined with Ueno, Ueno discloses the use of time periods less than about 10 seconds. The modifier "about" results in the inclusion of time periods greater somewhat than 10 seconds. A period less than a time of greater than 10 seconds can still be greater than 10 seconds. Thus, the time period now recited by applicant and that disclosed by Ueno overlap in the region of 10 seconds.

12. At page 11 of the Remarks, applicant argues that the combined teachings of Ueno and Dubin et al do not teach the limitation regarding limiting the deposition of an overburden or limiting deposition of further metal ions over the at least partially filled recessed microstructures. This argument is not convincing. The reverse power suggested by the references would limit the deposition of an overburden or limit deposition of further metal ions in the same manner as the reverse current of applicant. Applicant has offered no cogent explanation of why reverse power applied in the claimed process functions in a different manner than the reverse power applied by the references.

13.. Applicant further argues that according to Ueno, the formation of an overburden is desirable. It is first noted that Ueno is applied primarily to suggest a time period for the application of current in the process of Dubin et al. However, even if Ueno is taken to teach the formation of an overburden, this does not distinguish from the instant claims. Claim 1 recites supplying forward electroplating power for a first time period such as metal ions are deposited within the recessed microstructures to at least partially fill the microstructures. This limitation is open to the formation of an overburden. Once the microstructures are at least partially filled, claim 1 allows the deposition to continue until an overburden is formed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William T. Leader whose telephone number is 571-272-1245. The examiner can normally be reached on Mondays-Thursdays and alternate Fridays, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Wt

William Leader
December 22, 2006

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